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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,748	03/23/2004	Wei Lu	FIS920030308	2747
29154 7590 08/23/2007 FREDERICK W. GIBB, III Gibb & Rahman, LLC 2568-A RIVA ROAD SUITE 304 ANNAPOLIS, MD 21401			EXAMINER JOHNSTON, PHILLIP A	
			ART UNIT 2881	PAPER NUMBER
			MAIL DATE 08/23/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/708,748

Applicant(s)

LU ET AL.

Examiner

Phillip A. Johnston

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6-8, 10, 13-15, 17, 19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-8, 10, 13-15, 17, 19, and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Detailed Action

1. This Office Action is submitted in response to Amendment filed 6-5-2007, wherein claims 4-5, 9, 11-12, 16, and 18 are cancelled, claims 1,8, and 15 are amended. Claims 1-3, 6-8,10,13-15,17,19, and 20 are pending in the application. .

Examiners Response to Arguments

2. Applicants arguments are moot in view of new grounds for rejection necessitated by the applicant's amendment.

Claims Rejection – 35 U.S.C. 103

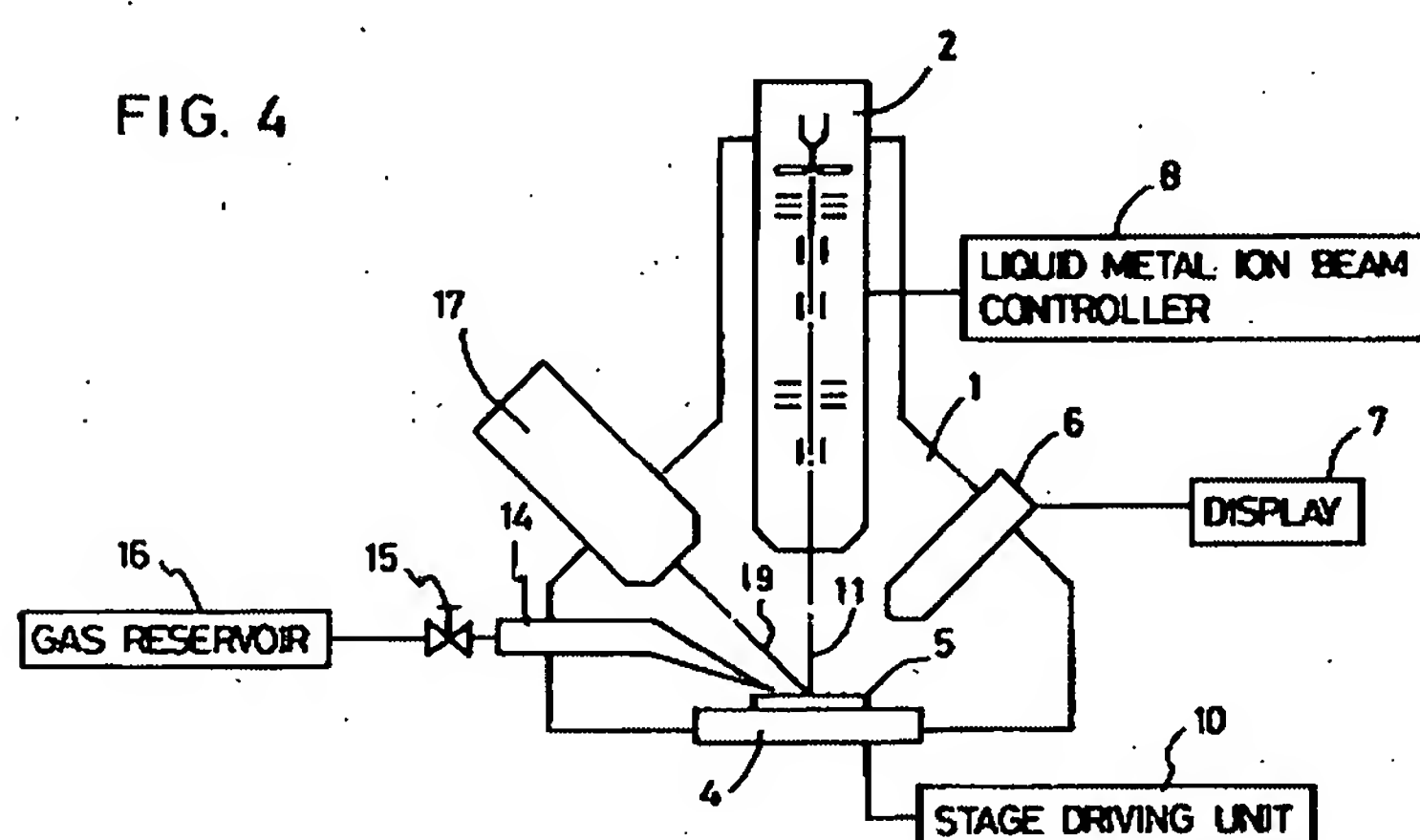
3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 6-8,10,13-15,17,19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,574,280 to Fuji, in view of Kadyshevitch, U.S. Pat. Pub. No. 2004/0021076.

5. Regarding claims 1,8, and 15, Fuji teaches a method of inspecting topographical features of the top layer of a structure, said method comprising: surrounding said structure with a precursor metal gas; directing an angled electron beam at said structure, wherein said secondary beams have less energy than said angled electron beam, and wherein said secondary electron beams break down said precursor metal gas to form a metal coating on said structure; directing an ion beam at

said structure to form a groove within said top layer of said structure, wherein said metal coating is adapted to protect said topographical features from said ion beam; and inspecting said topographical features exposed by said groove in said top layer of said structure. Column 2, line 40-49; Column 4, line 34-45; Column 5, line 47-57; and Figure 4 below.

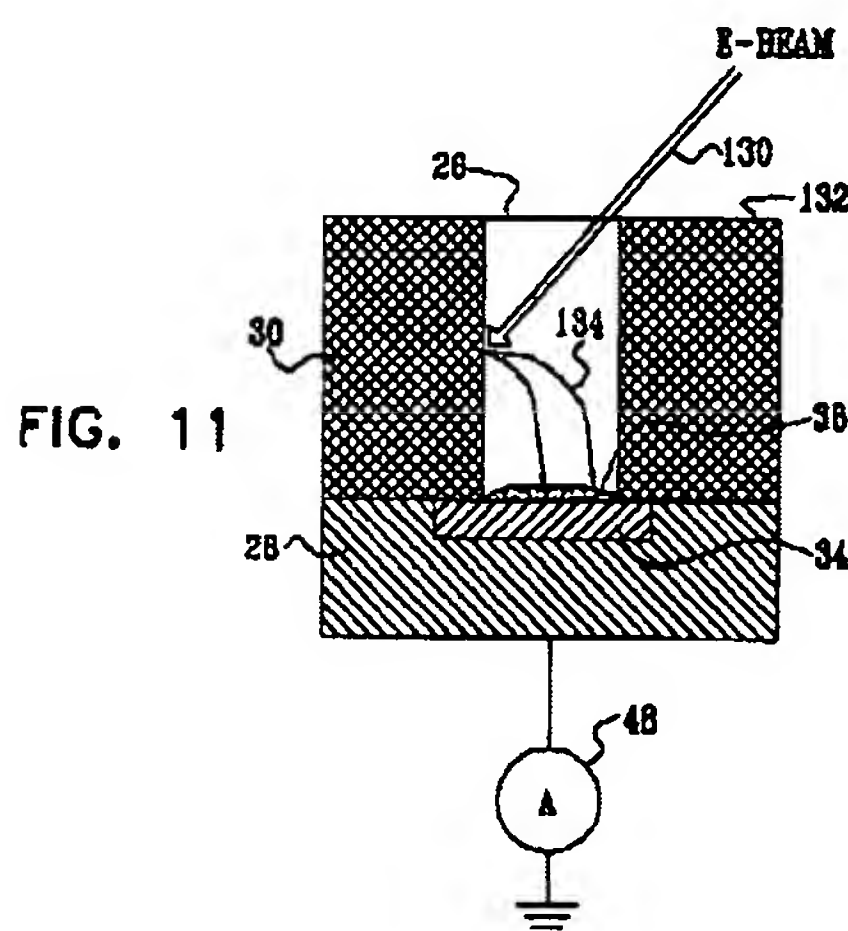


Fuji uses an angled electron beam 19 to irradiate an organic metal gas blown by gas source 14 onto the surface of semiconductor device 5, forming a hard protective metal film on the surface by the CVD (dissociation by secondary electrons) process. A portion of the sample 5 at the predetermined area is removed by ion beam sputtering (forms a groove), exposing the cross-section of the semiconductor, which is then imaged on display 7 (for inspecting the exposed area).

6. Fuji fails to teach directing an angled electron beam at the structure above, where an angle of said angled beam is selected to create secondary electron beams as said angled electron beam strikes sidewalls of said topographical features, comprising directing said electron beam at an angle sufficient to cause said electron

beam to strike the sidewalls of said topographical features and prevent said electron beam from reaching the bottom of said topographical features.

7. Kadyshevitch teaches angled irradiation of contact hole 26 by an electron beam 130, where the tilt angle of beam 130 is preferably chosen so that a majority of primary beam electrons do not strike the bottom of the contact hole. See [0198] and Figure 11 below.



8. Kadyshevitch modifies the Fuji method to provide a particle beam that radiates the surface of the sample at a non-normal angle, so that, the energetic primary beam strikes the side walls of the contact holes, rather than the bottom, and since the secondary electrons emitted from the side walls and upper edge of the contact holes are driven down toward the bottom of the holes, where they will have less effect on the bottom since they are substantially less energetic than the electrons in the primary beam.

9. Therefore it would have been obvious to one of ordinary skill in the art that Fuji would use an angled electron beam so that more of the charged particles strike the side walls than strike the bottom of the contact hole.

10. Regarding claims 2,3,7,10,14,17, and 20, Fuji as described above regarding claims 1,8, and 15, teaches directing said angled electron beam at an angle sufficient to cause said electron beam to strike the sidewalls of said topographical features, and comprises tilting a stage that at an angle between approximately 20 and 70 degrees with respect to the surface of the top layer of said structure (Note also Figure 6b in Fuji).

11. Regarding claim 6,13, and 19, the use of an electron beam having an energy level of approximately between 100 and 10,000 electron volts is well known in the art.

Conclusion

12. The Amendment filed on 6-5-2007 has been considered but the arguments are moot in view of new grounds for rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications should be directed to Phillip Johnston whose telephone number is (571) 272-2475. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor Robert Kim can be reached at (571) 272-2293. The fax phone number for the organization where the application or proceeding is assigned is 571 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PJ

August 7, 2007


ROBERT KIM
SUPERVISORY PATENT EXAMINER